UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,978	09/09/2003	Kazunari Hanano	SAS2-PT059	1280

3624 7590 09/23/2005

VOLPE AND KOENIG, P.C.
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER	
KOVAL, MELISSA J	
ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/657,978	HANANO, KAZUNARI	
	Examiner	Art Unit	
	Melissa J. Koval	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) *4-6,8-12,16-18,23,24,28-30,32-36,40-42,47,and 48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7,13-15,19-22,25-27,31,37-39,43-46,49 and 50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/04,9/04&1/04*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species V, Embodiment 5, in the reply filed on August 22, 2005 is acknowledged.

Claims 4 through 6, 8 through 12, 16 through 18, 23, 24, 28 through 30, 32 through 36, 40 through 42, 47 and 48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species. Election was made **without** traverse in the reply filed on August 22, 2005.

Claim Objections

Claims 7, 14, 21, 31, 38 and 45 are objected to because of the following informalities:

With respect to claim 7, it is not clear from the claim language that "NA" represents a light beam angle. Claim 31 is objected for the same reasons already applied to claim 7.

With respect to claim14 the limitation "the larger area becomes a direction of a small ratio" is unclear. A ratio does not have a direction. Claim 21, 38 and 45 are objected to for the same reasons already applied to claim 14.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, 13-15, 19, 21, 22, 25-27, 31, 37-39, 43, 46, 49 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Tiao et al. U.S. Patent 6,227,669 B1.

See Figures 7A and 8A of '669 B1, for example.

Claim 1 sets forth: "An illumination apparatus comprising (See either illumination device 700 or 800.):

a small-plane light source having diffusion radiation characteristics (See LED 712 or LED 812.);

a columnar light leading member, having an incident end surface, an outgoing radiation end surface and a reflection surface, configured to reflect on the reflection surface at least a part of a light ray from the small-plane light source collected from the incident end surface, thereby leading the light to the outgoing radiation end surface (See integrator 720 or wedged glass rod array 820.); and

an angle position converting member configured to convert an outgoing light angle intensity of the outgoing light from the outgoing radiation end surface of the columnar light leading member into a position intensity in a predetermined irradiation area (See polarization converter 730 adjacent converging lens 740, or lens array 830 adjacent converging means 840.)."

Claim 2 sets forth: "The apparatus according to claim 1, wherein

the angle position converting member includes a pupil forming member configured to form a pupil by using the outgoing radiation end surface of the columnar light leading member as a virtual light source, and

a position of the irradiation area is set in the vicinity of a position of a pupil formed by the pupil forming member." See converging means 840 as shown in Figure 8 and light valve 850.

Claim 3 is rejected for the same reasons already applied to claim 2.

Claim 7 sets forth: "The apparatus according to claim 2, wherein a maximum outgoing radiation NA of the columnar light leading member is configured to substantially match with an incident side NA when forming a pupil with a predetermined size by the pupil forming member." See Figure 8A.

Claim 13 sets forth: "The apparatus according to claim 1, wherein the columnar light leading member has a tapered shape such that an area of the outgoing radiation end surface is larger than an area of the incident end surface." See Figure 8A.

Claim 14 sets forth: "The apparatus according to claim 13, wherein the columnar light leading member has an anisotropy in a ratio of a size of the incident end surface and a size of the outgoing radiation end surface, and the columnar light leading member is arranged in such a manner that a direction of the larger area becomes a direction of a small ratio." See column 8, lines 34 through 47.

Claim 15 sets forth: "The apparatus according to claim 13, wherein the incident end surface and the outgoing radiation end surface of the columnar light leading

member have shapes similar to each other." See Figure 7A.

Claim 19 sets forth: "The apparatus according to claim 1, wherein the columnar light leading member includes a rod constituted by an optical plane made of a transparent material." See the plurality of columnar light converging lenses 722.

Claim 21 is rejected for the same reasons already applied to claim 14.

Claim 22 is met for the same reasons already applied to claim 19.

Claim 25 is rejected for the same reasons already applied to independent claim 1, furthermore refer to either light valve 720 or light valve 850. Figure 9 shows a projection optics 930 that may be used with the previously discussed embodiments shown in Figures 7A and 8A.

Claim 26 is rejected for the same reasons already applied to claim 2.

Claim 27 is rejected for the same reasons already applied to claim 3.

Claim 31 is rejected for the same reasons already applied to claim 14.

Claim 37 is rejected for the same reasons already applied to claim 13.

Claim 38 is rejected for the same reasons already applied to claim 14.

Claim 39 is rejected for the same reasons already applied to claim 15.

Claim 43 is rejected for the same reasons already applied to claim 19.

Claim 46 is rejected for the same reasons already applied to claim 15.

Claim 49 is rejected for the same reasons already applied to rejected claim 1.

Claim 50 is rejected for the same reasons already applied to rejected claim 25.

Claims 1, 13-15, 19-22, 25, 37-39, 43-46, 49 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Parker et al. U.S. Patent 6,224,216 B1.

Claim 1 sets forth: "An illumination apparatus comprising (See multimedia projector 30.):

a small-plane light source having diffusion radiation characteristics (See light sources 32 that may be comprised of LED arrays.);

a columnar light leading member, having an incident end surface, an outgoing radiation end surface and a reflection surface, configured to reflect on the reflection surface at least a part of a light ray from the small-plane light source collected from the incident end surface, thereby leading the light to the outgoing radiation end surface (See light pipes 38 as they connect to optical integrator 40.); and

an angle position converting member configured to convert an outgoing light angle intensity of the outgoing light from the outgoing radiation end surface of the columnar light leading member into a position intensity in a predetermined irradiation area (See one or more optical path lenses 42.)."

With respect to claims 13 through 15 and 19 through 22, see column 6, lines 46 through 67, and column 7, lines 1 through 18.

Claim 25 is rejected for the same reasons already applied to rejected claim 1 above, and furthermore refer to DMD 44 and projection lens 46.

With respect to claims 37 through 39 and 43 through 46, again refer to column 6, lines 46 through 67, and column 7, lines 1 through 18.

Claim 49 is rejected for the same reasons already applied to rejected claim 1.

Claim 50 is rejected for the same reasons already applied to rejected claim 25.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,916,097 B2 teaches a light source device and projection type display unit to which the device is applied.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa J. Koval whose telephone number is (571) 272-2121. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).